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CRUSTACEA

COMPILED BY

J. P. HARDING, Ph.D.

AND

R. W. INGLE

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II—SUBJECT INDEX

GENERAL

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Nomenclature.—**Declaration 21, 31, 36, 37, 40, 45, 47, 49, 50, 51, Opinion 378, 381–383, 394, 423, 433, 434** ; **Hall,** D. N. F., **Hemming,** F., **Hemming,** F. (**1**) ; **Holthuis,** L. B. (2-7) ; **Holthuis,** L. B. & **Hemming,** F. ; **Johnson,** D. S. (**1**) ; **Lindberg,** K. (**3**) ; **Macdonald,** J. D., **Pike,** R. B., **Williamson,** D. I. & **Garth,** J. S. ; **Sylvester-Bradley,** P. C. and (**2**) ; **Sylvester-Bradley,** P. C. & **Iles,** E. J. ; **Tasch,** P. and (**1**) ; **Webb,** J. E. & **Elgood,** J. H.

Vernacular names. — Rennell Islands, **Wolff,** T. (**3**).

Economics.—Edible crab, **Dewbery,** E. B. ; Fisheries, New Guinea, **Holthuis,** L. B. (**11**) ; Shrimps & Prawns, **Horsted,** S. A. & **Smidt,** E. ; **Liu,** J. Y. (**1**) ; **Schuster,** W. H. ; **Tiews,** K. ; Semi dried prawns, **Venkataraman,** R. & **Vasavan,** A. G. ; *Penaeus*, cultivation in Philippines, **Villadolid,** D. V. & **Villaluz,** D. K. ; Mysidacea, **Băcescu,** M. (**2**) ; Introduced Mysidacea, **Zhuravel,** P. A. ; Propogation of *Penaeus* in captivity, **Johnson,** M. C. & **Fielding,** J. R. ; Wood-borers, **Deschamps,** P.; Migratory habits of *Limnoria*, **Johnson,** M. W. & **Menzies,** R. J. ; Fouling by barnacles, **Mawatari,** S. & **Kobayashi,** S. ; **Mawatari,** S., **Hirosaki,** I. & **Kobayashi,** S. ; DDT for barnacle settlement, **Waugh,** G. D. & **Ansell,** A. ; Damage to watercress, **Labeyrie,** M. V. ; Copepods as enemies of mosquitoes, **Lindberg,** K. (**4**) ; Crayfish, predators on mollusca, vectors of bilharzia, **Deschiens,** R. & **Lamy,** L. ; **Deschiens,** R., **Dechancé,** M. & **Vermeil,** C. ; *Cyclops* infected with *Dracunculus* larvae, **Onabamiro,** S. D. ; *Daphnia magna* in bioassay, **Gebler,** K. ; *Artemia* as

test organism, **Michael,** A. S., **Thompson,** C. G. & **Abramowitz,** M. ; Food of fishes, **Berinkey,** L. & **Farkas,** H. ; Polluted waters, **Šrámek-Hušek,** R.

Methods.—(For Culture methods see under Ecology and Habits.) Catching Crustacea, **Holthuis,** L. B. (**11**) ; Plankton collecting, **Elster,** H. J. ; The Hardy Plankton Indicator, **Glover,** R. S. & **Pope,** J. A. ; Estimating plankton populations, **Aleem,** A. A. ; Plankton calculations, **Beldescú,** St., **Negrea,** St. & **Elien,** L. ; Microscope slide, **Perkins,** E. J. (**2**).

Museums.—Leiden, **Anon.** ; Oslo, **Lindberg,** K.

Obituaries.—R. Gurney, **Calman,** W. T. ; C. Wesenberg-Lund, **Berg,** K.

Biography.—O. Sund, **Sivertsen,** E. & **Holthuis,** L. B.

Bibliographies.—Pagurid Crabs, **Gordan,** J. ; New ostracod genera and species, **Levinson,** S. A.

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General Anatomy.—Gruner, H. E. & **Deckert,** K. ; *Porcellio*, **Akahira,** Y. ; *Thermosbaena*, **Barker,** D.

Head.—Dahl, E.

Appendages.—Snodgrass, R. E. —*Caridina*, mouthparts, **Pillai,** R. S. ; *Alpheus*—asymmetric chela, **Shin-Iké,** T. ; Post-abdomen of *Camptocercus*, **Green,** J. (**1**).

Integument.—Cuticle, **Drach,** P. (**2**) ; **Krishnan,** G. ; Chitin, **Athanassopoulos,** G. ; Shell of barnacles, composition, **Barnes,** H. (**1**) ; Shell sculpture in fossil Conchostraca, **Novozhilov,** N. I. ; Ostracod shell hinge, **Malz,** H. ; **Sylvester-Bradley,** P. C. (**1**) ; Tegument glands, *Nebalia*, **Duveau,** J. ; in Woodlice, **Gorvett,** H. ; *linea impressa* in Alpheidae, **Gordon,** I.

Alimentary canal.—Isopoda, **Jeuniaux,** C. ; **Radu,** V. V. (**1**)

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Muscles.—Post abdomen of *Camptocercus*, **Green,** J. (**1**) ; Receptor elements in *Leander*, muscle, **Alexandrowicz,** J. S.

Endocrine organs.—Charniaux-Cotton, H. (**2**) ; **Daniel,** R. ; **Knowles,** F. G. W. & **Carlisle,** D. B.; **Mayrat,** A.

Nervous system. — *Cambarus*, **Chaudonneret,** J. ; Giant axon preparation from Lobster, **Tobias,** J. M. & **Bryant,** S. H.

Sense organs.—*Carcinus* & *Maja*, **Dijkgraafs,** S. ; Stretch receptor, **Giese,** A. C. & **Furshpan,** E. J. ; Optical apparatus, **Schöne,** H. Eyestalk of *Penaeus*, **Young,** J. H.

Reproductive organs.—*Hippa*, origin spermatophoric mass, **Matthews,** D. C. (**1**).

Histology.—Neurosecretory cell types in crayfish. **Durand,** J. B. ; Sinus gland, **Daniel,** E. ; Y-organ, **Gabe,** M. ; Eyestalk, **Miyawaki,** M. (**1**), **Young,** J. H. ; Tegumentary glands, **Duveau,** J. ; **Krishnakumaran,** A. ; Spermatophores, **Matthews,** D. C., D. C. (**1**) ; Thoracic processes in *Porcellio*, **Akahira,** Y.

Cytology.—Blood, **Toney,** M. E., Jr. ; Neurosecretory cells *Telmessus*, **Miyawaki,** M. (**2**) ; Chromosomes of *Jaera*, **Staiger,** H. & **Bocquet,** C.

Teratology.—Conjoined twin crayfish, **Zipf,** E. M.

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Respiration. — Respiratory metabolism in *Uca*, **Tashian,** R. E. ; Oxygen consumption of tissue in marine decapoda, **Vernberg,** F. J. ; Gas exchange in Crustacea, **Bodrova,** N. V. & **Krayukhin,** B. V. ; Effects of temperature changes, **Grainger,** J. N. R. ; Respiration of the Lobster,

McLeese, D. W. ; *Palaemonetes*, **Lofts,** B. (**1**) ; *Ligia*, **Ellenby,** C. & **Evans,** D. A. ; *Daphnia*, **Green,** J. (**2**) ; *Artemia*, **Gilchrist,** B. M. ; Function of hemocyanin, **Redmond,** J. R.

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Secretion.—Tegumental glands in woodlice, **Gorvett,** H.

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Nutrition.—Decapoda, **George,** J. C. & **Patel,** B. S. ; Shrimps, **Flint,** L. H. ; Deep-sea isopoda, **Menzies,** R. J. (**2**) ; *Atya*, **Darnell,** R. M. ; *Artemia*, **Gibor,** A. ; Feeding and digestion of young stages of *Calanus*, **Marshall,** S. M. & **Orr,** A. P.

Digestion.—*Limnoria*, digestion of wood, **Ray,** D. L. ; Digestive carbohydrases in *Porcellio*, **Newcomer,** W. S.

Nerve Physiology.—**Alexandrowicz,** J. S. ; **Benoit,** P. H. ; **Bryant,** S. H. & **Tobias,** J. M. ; **Cohen,** M. J. ; **Cook,** J. S. ; **Dijkgraaf,** S., S. (**1–2**) ; **Fingerman,** M. (**3**)

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Sense physiology.—**Médioni,** J. ; **Schöne,** H. ; Vertical migration in eyeless *Daphnia*, **Harris,** J. E. & **Mason,** P.

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Colour physiology.—**Anders,** A. ; *Gammarus*, **Anders,** F. (**1**), (**2**) ; *Hippolyte*, **Chassard,** C. ; **Chicewicz,** M. ; **Fingerman,** M., M. (**1–4**) ; **Fingerman,** M. & **Fitzpatrick,** C. ; **Fingerman,** M. & **Tinkle,** D. W. ; **Knowles,** F. G. W. (**1–2**) ; **Knowles,** F., **Carlisle,** D. & **Dupont-Raabe,** M. ; **Massonet,** R. ; **Schoor,** H. ; **Nayar,** K. K. & **Parameswaran,** R. ; **Östlund,** E. & **Fänge,** R. ; **Voss,** G. L.

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waki, M. ; Enzymes, **Knowles,** F. & **Carlisle,** D. & **Dupont-Raabe,** M.

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Fertilization.—Terrestrial hermit crabs, **Matthews,** D. C. ; Origin of spermatophoric mass in *Hippa*, **Matthews,** D. C. (**1**).

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Embryology.—*Cambarus*, **Hart,** C. W., Jr. ; *Gastrosaccus*, **Matsudaira,** C., **Kariya,** T. & **Tsuda,** T. ; *Irona*, **Nair,** S. G.

Developmental Stages.—Larval stages, general survey, **Snodgrass,** R. E. ; Decapoda, **Kurian,** C. V. ; *Panulirus*, a prenaupliosoma stage, **Feliciano,** C. ; *Panulirus*, **Johnson,** M. W. ; *Pirimela*, **Bourdillon-Casanova,** L. (**1**) ; Hapalocarcinids, **Fize,** A. ; *Porcellana*, **Bourdillon-Casanova,** L. ; Penaeids, **Heldt,** J.-H., J.-H. (**1**) ; Euphausiacea and Mysidacea, **Bary,** B. M. ; *Grandidierella*, **Nayar,** K. N. ; *Gnathophylloides*, **Lewis,** J. B. ; *Pontonia*, **Bourdillon-Casanova,** L. (**2**) ; *Gastrosaccus*, **Matsudaira,** C., **Kariya,** T. & **Tsuda,** T. ; *Balanus*, **Barnes,** H. ; **Hudinaga,** M. & **Kasahara,** H. ; *Balanus* and *Chthamalus*, **Daniel,** A. (**1**) ; *Balanus* shell development, **Costlow,** J. D. ; Copepod nauplii, **Ogilvie,** H. S. ; *Cyclops*, nauplii & cyclopodids of 11 spp., **Dukina,** B. B. ; Choniostomatid, **Fischer,** W.

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T. E. & **Alverson,** F. G. ; Isopoda, **Menzies,** R. J.(**1**) ; Ostracod hinge, **Sylvester-Bradley,** P. C. (**1**) ; Superspecies of marine isopod, **Bocquet,** C.

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Brackish water.—**Day,** J. H. & **Morgans,** J. F. C. ; **Leloup,** E. & **Konietzko,** B. ; **Schutz,** L. & **Kinne,** O. ; **Siewing,** R.

Subterranean.—**Aellen,** V. & **Strinati,** P. ; **Birstein,** I. A. (**2**) ; **Brian,** A. ; **Chappuis,** P. A. ; **Chappuis,** P. A., **Delamare Deboutteville,** C. L. & **Paulian,** R. ; **Dobreanu,** E. & **Manolache,** C. ; **Gerlach,** S. A. ; **Ginet,** R. ; **Holthuis,** L. B. (**9**), (**10**) ; **Husmann,** S. ; **Husson,** R., R. (**1**) ; **Matsumoto,** K. (**1**) ; **Micherdzinski,** W. ; **Mostaş & Orghidan,** T. ; **Paulian,** R., **Delamare Deboutteville,** C. L. ; **Ueno,** M. & **Morimoto,** Y. ; **Vandel,** A. (**5**).

Sand dwelling. — *Microcerberus*, **Chappuis,** P. A. & **Delamare Deboutteville,** C. L. ; *Angeliera*, **Delamare Deboutteville,** C. L. & **Chappuis,** P. A. (**1**)*; Copepods, **Fryer,** G. ; **Gerlach,** S. A. ; **Soika,** G. (**1**) ; **Noodt,** W. ; Amphipoda, **Ruffo,** S.

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Population studies.—Plankton, **Aleem,** A. A. ; *Sphaeroma*, **Hoestlandt,** H. (**1**) ; *Balanus*, **Barnes,** H. ;

Copepods, **Geinrikh,** A. K. (**1**) ; **Mordukhai-Boltovskaya,** E. J. ; Cladocera, **Leloup,** E., **Konovalov,** P. M. ; **Slobodkin,** L. B. & **Richman,** S.

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Tidal rhythms.—Fiddler crab, **Brown,** F. A., Jr. ; *Uca,* **Fingerman,** M. (**1**) ; *Pandalus,* **Horsted,** S. A. & **Smidt,** E.

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Behaviour.—Edible crab, **Dewberry,** E. B. ; *Maia,* **Le Seuer,** R. F. ; Fiddler crabs, **Altevogt,** R. ; *Procambarus,* **Bovbjerg,** R. V. ; *Cambarellus,* **Lowe,** M. E. ; *Cardisoma,* **Villiers,** A. ; *Caridina,* **Pillai,** R. S. ; *Tozeuma,* **Voss,** G. L. ; *Atya,* **Darnell,** R. M. ; *Porcellio,* **Bakker,** K. ; *Tylos,* **Matsakis,** J. ; *Niphargus,* **Ginet** R. ; *Gastrosaccus,* **Matsudaira,** C., **Kariya,** T. & **Tsuda,** T. ; *Thermosbaena,* **Barker,** D. ; Barnacles, **Darnil,** A. ; **Daniel,** A. ; Interstitial copepods **Krishnaswamy,** S. (**1**) ; *Camptocercus,* **Green,** J. (**1**) ; *Linuparus,* **McNeill,** F.; Vertical migration in eyeless *Daphnia,* **Harris,** J. E. & **Mason,** P. ; *Dadaya* and *Oncocypris* associated with surface film of water, **Fryer,** G. (**2**) ; Encystment, *Artemia,* **Myint,** T. ; Burrows of Paleocene, **Gekker,** R. F. ; Copepods feeding on mosquitoes, **Lindberg,** K. (**4**).

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Parasitism.—**Bauer,** O. N. ; **Dogiel,** V. A. ; **Dollfus,** R. P. ; **Fryer,** G. (**3**) ; **Hattori,** J. & **Seki,** M. ; **Kirtisinghe,** P. ; *Achtheres,* **Kozikowska,** Z., **Jara,** Z. & **Grabda,** E. ; **Menzies,** R. J., **Bowman,** T. E. & **Alverson,** F. G. ; **Ranise,** S. ; **Rudloff,** O. & **Veillet,** A. ; *Nitocrella* on gills of *Astacus,* **Straskraba,** M. (**2**) ; **Szidat,** L. ; **Taberly,** G.

Culture methods.—Crayfish in Aquarium, **Howes,** W. J. ; **Johnson,** M. C. & **Fielding,** J. R. ; *Daphnia* fed on pollen, **Vuillaume,** M.

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1. LAND AND FRESHWATER.

PALAEARCTIC REGION

Atlantic Islands.—Azores, **Vandel,** A. (**2**).

British Isles.—**Bunting,** A. & W. ; **Dalton,** R. F. ; **Delany,** M. J. ; **Harding,** J. P. & **Gervers,** F. W. K. ; **Hynes,** H. B. N. ; **Scott,** A. ; **Slack,** F. E. ; **Smyly,** W. J. P., W. J. P. (**1**) ; **Weerekoon,** A. C. J. ; Channel Islands, **Sueur,** R. F. Le.

Norway.—**Segerstrale,** S.

Denmark.—**Berg,** K. & **Petersen,** I. C. ; **Dunn,** D. R.

Finland.—**Jarnefelt,** H.

Poland.—**Grabda,** J. ; **Kozikowska,** Z., **Jara,** Z. & **Grabda,** E. ; **Micherdzinski,** W.

Latvia.—**Spuris,** Z. D.

Germany.—**Buck,** H. ; **Herbst,** H. V., H. V. (**2**) ; **Hoffmann,** P. ; **Husmann,** S. ; **Jerzmanska,** A. ;

Kiefer, F. (**1**) ; **Muller-Liebenau,** I. ; **Schmidt-Ries,** H. ; **Schütz,** L. & **Kinne,** O.

Switzerland.—Aellen, V. & **Strinati,** P.

France.—Aguesse, P. ; **Dupeyrou,** H. ; **Gouin,** F. ; **Hubault,** E. & **Ruffo,** S. ; **Legrand,** J. J. (**4**).

Belgium.—Leloup, E. ; **Leloup,** E. & **Konietzko,** B.

Holland.—Frentrop, J. ; **Hartog,** C. & **Swennen,** C. ; **Holthuis,** L. B. (**1**) ; **Leentvaar,** P.

Spain.—Margalef, R., R. (**1**) ; Balearic Isds., **Vandel,** A. (**1**).

Portugal.—Braga, J. M.

Italy.—Arcangeli, A. (**1**) ; **Brian,** A. ; **Marcuzzi,** G. ; **Stella,** E. ; **Taramella,** E., E. (**1**) ; **Tonolli,** V.

Czechoslovakia. — Folkmanová, B., **Kočiš,** M. & **Zlámková,** M. ; **Kašták,** V. ; **Obr,** S., S. (**1**) ; **Romanovsky,** A. ; **Sládeček,** V. ; **Straskraba,** M. ; **Štêrba,** O.

Hungary. — Berinkey, L. & **Farkes,** H. ; **Ponyi,** E., E. (**2**), E. (**3**).

Yugoslavia. — Buturovic, A. ; **Karaman,** S. L. (**1**) ; **Matjašič,** J. ; **Petkovski,** T. K.

Roumania.—Carauşu, S. (**2**) ; **Dobreanu,** E. & **Manolache,** C. and (**1**) ; **Dobreanu,** E., **Manolache,** C. & **Puscariu,** V. and (**1**) ; **Enăceanu,** V., V. (**1**) ; **Pleşa,** C., C. (**1**) ; **Pleşa,** C. & **Serban,** M. ; **Radu,** V. Gh., (**2**), (**3**) ; **Radu,** V. G., **Radu,** V. V. & **Cadaru,** M. C.

Greece.—Ananiadis, C. I. ; **Karaman,** S. L.

Crete.—Brehm, V., V. (**3**) ; **Lindberg,** K. (**2**).

USSR.—Aïzenberg, D. E. & **Brazhnikova,** N. E. ; **Basikalova,** A. J. ; **Bulicheva,** A. I. ; **Lubyanov,** I. P. ; **Kirillov,** F. N. ; **Zhuravel,** P. A.

Mongolia.—Shen, C. J.

China.—Shen, C. J.

Japan.—Kamita, T. ; **Kikuchi,** H. ; **Matsumoto,** K. (**1**) ; **Uéno,** M., M. (**1**) ; **Uéno,** M. & **Morimoto,** Y.

Iran.—Loffler, H.

North Africa. — Cloudsley-Thompson, J. L. ; **Holthuis,** L. B. (**12**) ; **Rzóska,** J. ; **Rzoska,** J., **Brook,** A. J. & **Prowse,** G. A. ; **Vandel,** A. (**2**), (**6**).

ETHIOPIAN REGION

East Africa.—Fryer, G., G. (**2**), G. (**3**) ; **Kiefer,** F. (**4**) ; **Percy,** R. C. & **Ridley,** M. W. ; **Verestchagin,** G.

West Africa.—Capart, A. ; **Gordon,** I. ; **Johnson,** G. ; **Lewis,** D. J. ; **Lindberg,** K. (**1**) ; **Rahm,** U. ; **Røen,** U.

Madagascar.—Chappuis, P. A. (**2**) ; **Holthuis,** L. B. (**10**) ; **Kiefer,** F. (**2**).

ORIENTAL REGION

India.—Ganapati, S. V. ; **Tiwari,** K. K. (**1**).

Sumatra.—Johnson, D. S.

AUSTRALIAN REGION

Australia.—Riek, E. F.

Tasmania.—Guiler, E. R.

New Guinea.—Holthuis, L. B. (**11**).

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North American Canthocamptidae, **Wilson,** M. S.

Canada.—Northcote, T. G. & **Larkin,** P. A..

Alaska.—Wilson, M. S. (**1**).

U.S.A.—Brown, P. ; **Brehm,** V. (**2**) ; **Cole,** G. A. ; **Dexter,** R. W. ; **Hart,** C. W. & **Hobbs,** H. H., Jr. ; **Henson,** E. B. ; **Hobbs,** H. H., Jr. (**1–3**) ; **Kozloff,** E. N. ; **Penn,** G. H., G. H. (**1**) ; **Swain,** T. W. ; **Tressler,** W. L.

CENTRAL AMERICA

Mexico.—Darnell, R. M.

El Salvador.—Bott, R.

Bahamas.—Chappuis, P. A. & **Delamare Deboutteville,** C.

Jamaica.—Tressler, W. L.

Venezuela.—Kiefer, F.

SOUTH AMERICA

Gerlach, S. A. & **Siewing,** R. ; **Holthuis,** L. B., L. B. (**9**) ; **Brehm,** V. (**1**), (**4**) ; **Siewing,** R. ; **Szidat,** L.

2. MARINE

ARCTIC

Brodsky, K. A. (**2**) ; **Dunbar,** M. J. ; **Guryanova,** E.

NORTH TEMPERATE

North Atlantic.—Haig, J. ; **Sivertsen,** E. & **Holthuis,** L. B. ; **Wolff,** T. (**1**).

British Coastal Waters.—Barnes, H. ; **Davis,** A. ; **Gordon,** I. (**1**) ; **Gordon,** I. & **Ingle,** R. W. ; **Gotto,** R. V. ; **Harding,** J. P. ; **Jones,** N. S. ; **Lofts,** B. ; **Maghraby,** A. M. el & **Perkins,** E. J. ; **Perkins,** E. J., E. J. (**1**) ; **Southward,** A. J. & **Crisp,** D. J. ; **Williamson,** D. I. ; **Wilson,** E. ; **Bocquet,** C. & **Stock,** J. H. ; **Bocquet,** C. & **Stock,** J. H. (**1**) ; **Vos de,** A. P. C. & **Stock,** J. H.

Dutch Coast.—Holthuis, L. B. (**1**) ; **Vos,** de A. P. C. & **Stock,** J. H.

Belgian Coast.—Lefevere, S., **Leloup,** E. & **Van Meel,** L. ; **Leloup,** E. & **Konietzko,** B..

French Atlantic Coast.—Callame, B. ; **Hartog,** den C. ; **Jacquemart,** J. ; **Rome,** R. ; **Saudray,** Y. ; **Vos,** de A. P. C. & **Stock,** J. H.

Spanish Coast.—Hoestlandt, H. (**1**) ; **Rey,** L. L.

N. Atlantic (American side).—Brunel, P. ; **Clarke,** Wm. D. ; **Fleminger,** A. & **Bowman,** T. E. ; **Ryan,** E. P. ; **Sanders,** H. L. ; **Swain,** F. M. ; **Swan,** E. F.

Baltic Sea.—Brinck, P., **Dahl,** E. & **Wieser,** W. ; **Fischer,** W. ; **Forsman,** B. ; **Münch,** H.-D.

Mediterranean. — Bourdillon-Casanova, L. ; **Cărăușu,** A. ; **Forest,** J. & **Guinot,** D. ; **Gerlach,** S. H. ; **Holthuis,** L. B. & **Gottlieb,** E. ; **Matsakis,** J. (**1**) ; **Ranise,** S. ; **Tregouboff,** G. ; **Zariquiey,** A. R.

Adriatic.—Battaglia, B. ; **Hure,** J. ; **Kurian,** C. V. ; **Petkovski,** T. K. (**1**) ; **Soika,** A. G., A. G. (**1**).

Black Sea.—Băcescu, M., M. (**1–4**) ; **Beldescu,** St., **Negrea,** St. & **Elien,** C. ; **Cărăusu,** S., S. (**1**) ; **Codreanu,** M. & **Codreanu,** R. ; **Derzhavin,** A. N. ; **Konovalov,** P. M. ; **Pleșa,** C. (**1**) ; **Pora,** E. ; **Șerban,** M. ; **Vasiliu,** G. D. & **Cărăușu,** A.

Caspian Sea.—Birstein, Y. A. (**1**).

North Pacific Ocean.—Wolff, T. (**1**) ; California coast, **Barnard,** J. L. ; **Haig,** J. (**1**) ; **Hurley,** D. E. (**3**) ; **Hurley,** D. E. (**4**) ; **Johnson,** M. W. ; **Jones,** M. & **Hand,** C. ; **Menzies,** R. J. & **Bowman,** T. E. ; **Menzies,** R. J., **Bowman,** T. E. & **Alverson,** F. G. ; **Menzies,** R. J. & **Pettit,** J. ; **Muscatine,** L. ; **Shoemaker,** C. R. (**1**) ; **Vos,** de A. P. C. & **Stock,** J. H. ; British Columbia coast, **Butler,** T. H. ; North West Pacific Seas, **Brodsky,** K. A. (**3**) ; **Doziel,** V. A. ; **Geinrikh,** A. K., A. K. (**1**) ; **Vinogradova,** N. G. ; North China Seas, **Liu,** J. ; **Liu,** J. Y. (**1**) ; Japanese waters, **Gusev,** A. V. ; **Hattori,** J. & **Seki,** M. ; **Kubo,** I. ; **Matsudaira,** C., **Kariya,** T. & **Tsuda,** T. ; **Miyake,** S. ; **Ponomareva,** L. A. ; **Shiino,** S. M., S. M. (**1–4**) ; **Tanaka,** O., O. (**1**) ; **Urita,** T., T. (**1**) ; **Utinomi,** H. ; **Yamazi,** I.

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Tropical Atlantic.—Carribbean Area, **Allen,** J. A. ; **Bowman,** T. E. ; **Chappuis,** P. A. (**1**) ; **Chappuis,** P. A. & **Delamare Deboutteville,** C. ; **Herbst,** H. V. (**1**) ; **Menzies,** R. J. (**1**) ; **Reinhard,** E. G. ; **Menzies,** R. J. (**2**) ; **Shoemaker,** C. R. ; **Wolff,** T. ; **Wickstead,** J. H. ; West Coast of Africa, **Chace,** F. A. ; **Forest,** J. ; **Jones,** N. S. ; **Lang,** K. (**1**) ; **Monod,** Th. ; Indian Ocean, **Holmquist,** C. ; **Rangnekar,** M. P. ; **Ruffo,** S. (**1**) ; **Wolff,** T. (**1**) ; Persian Gulf, **Torelli,** B. ; Madagascar Coast, **Chappuis,** P. A. & **Delamare-Deboutteville,** C. L. ; **Chappuis,** P. A., **Delamare Deboutteville,** C. L. & **Paulian,** R. ; **Delamare Deboutteville,** C. L. & **Chappuis,** P. A. (**1**) ; **Humes,** A. G. ; **Paulian,** R. & **Delamare Deboutteville,** C. L. ; **Ruffo,** S. ; **Jones,** N. S. (**1**).

Tropical Indo Pacific.—Hall, D. N. F. ; **Serene,** R. ; Central

Pacific, **Wolff,** T. ; Indo-China Seas, **Boschma,** H. (**3**) ; **Fize,** A. ; **Fize,** A. & **Serene,** R. ; **Forest,** J. (**2**) ; Philippine Islands, **Hubendick,** B. ; New Guinea Seas, **Boschma,** H., H. (**4**) ; **Wolff,** T. (**3**), & **Bradley,** J. D.; Queensland Coast, **Endean,** R., **Stephenson,** W. & **Kenny,** R. ; Great Barrier Reef, **Gordon,** I. (**2**) ; Polynesian Seas, **Banner,** A. H. ; **Garth,** J. S. & **Haig,** J. ; **Forest,** J. (**1**) ; **Forest,** J. (**3**) ; Brazil Coast, **Lang,** K. ; **Ruffo,** S. (**2**) ; S. American North West Coast, **Garth,** J. S. & **Haig,** J. ; **Hartmann,** G. ; Galapagos Is., **Triebel,** E.

SOUTH TEMPERATE

South Atlantic.—Holmquist, C. ; **Wolff,** T. ; S. Atlantic Islands, **Ringuelet,** R. A.

South African Coasts.—Barnard, K. H. ; **Brattström,** H. ; **Brown,** A. C. ; **Day,** J. H. & **Morgans,** J. F. C. ; **Menzies,** R. J. & **Miller,** M. A.

Australian Temperate Waters.—Yaldwyn, J. C.

New Zealand waters.—Bary, B. M. ; **Hurley,** D. E., D. E. (**1–2**).

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ANTARCTIC

Perkins, E. J.

PALAEONTOLOGY

PALAEOZOIC

Zavidova, A. G.

Cambrian.—Netzkaya, A. I. & **Ivanova,** V. A. ; **Rusconi,** C. ; **Shobogorov,** P. C. L.

Ordovician.—Caster, K. E. & **Brooks,** H. K. ; **Kaljo,** D., **Oraspold,** A., **Roomusoks,** A., **Saru,** L. & **Stumbur,** H. ; **Komar,** V. A. ; **Rusconi,** C.

Silurian.—Jofshtein, I. D. ; **Kjellesvig-Waering,** E. N. ; **Komar,** V. A.

Devonian.—Gibson, L. B. ; **Larionova,** E. N. ; **Liepin,** P. P. ; **Rinks,** E.

Carboniferous.—Brooks, H. K. ; **Craig,** G. Y. ; **Pistrak,** R. M., **Semikhatova,** S. V., **Pashkevich,** E. I. & **Vereïskaya,** K. N. ; **Pronin,** A. A. & **Tuzhikova,** V. I. ; **Semikhatova,** S. V.

Permian.—Beurlen, C. ; **Rusconi** C. ; **Sohn,** I. G.

MEZOZOIC

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Triassic.—Ignatyev, V. I.

Jurassic.—Bartenstein, H. & **Burri,** F. ; **Bachmayer,** F. ; **Novozhilov,** N. I. ; **Peterson,** J. A.

Cretaceous.—Bachmayer, F. ; **Bartenstein,** H. ; **Bartenstein,** H. & **Burri,** F. ; **Jux,** U. ; **Novozhilov,** N. I. ; **Oliveira,** P. E. de.

TERTIARY

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Oligocene.—Gryaznov, V. I. ; **Hagn,** H. & **Hölzl,** O. ; **Olsson,** A. A. & **Pilsbry,** H. A. ; **Zazvorka,** V.

Miocene.—Grossgeim, V. A. ; **Hagn,** H. & **Hölzl,** O. ; **Seneš,** J. ; **Thomas Doménech,** J. M.

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Brachyrhyncha

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